

CHAPTER 10

ROYAL NAVY FIELD GUN OPERATING INSTRUCTIONS AND SAFETY

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CHAPTER 10

ROYAL NAVY FIELD GUN OPERATING INSTRUCTIONS AND SAFETY

OPERATION OF NAVAL 12LB FIELD GUN BREECH AND LOADING/UNLOADING OF FIELD GUN DRILL CARTRIDGE

1001. Instructions for Operating the Breech of RN Field Gun

The breech of the Naval 12lb Field Gun is operated as follows:

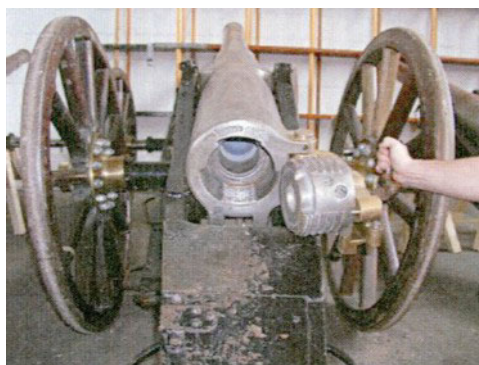
Fig 10-1. Breech Closed



- a. [Fig 10-1](#) shows the breech in the closed position with the breech handle fully home.
- b. To open the breech, the No1 Trainer, Firing Number or Track Judge places their hand on the breech handle and pulls away from the barrel and to the right of the gun trail, such that it moves from left to right in an arc. The mechanism rotates and unlocks the threaded splines inside the breech and swings open as shown in [Fig 10-2](#).

Note. *The firing pin is inside the small recess on the flat face on the inside of the breech.*

Fig 10-2. Breech Open



- c. The drill cartridge is inserted as per [Fig 10-3](#) and [Fig 10-4](#). The cartridge is inserted inside the barrel and pushed fully home so the lip of the drill cartridge is flush with the barrel recess.

Fig 10-3. Cartridge Ready to be Inserted



Fig 10-4. Cartridge Inserted



- d. The breech handle is then gripped as per [Fig 10-5](#) and moved from right to left across the rear of the barrel chamber. When the breech closes ([Fig 10-6](#)), the operating mechanism allows the firing pin to move forward and strike the base of the blank 5.56 round resulting in the expenditure of the round.

Note. The breech need only be closed sufficiently to affect the expenditure of the blank 5.56 round.

Fig 10-5. Breech Ready to be Closed

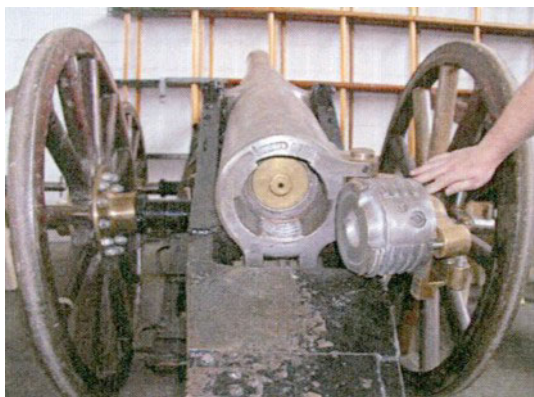
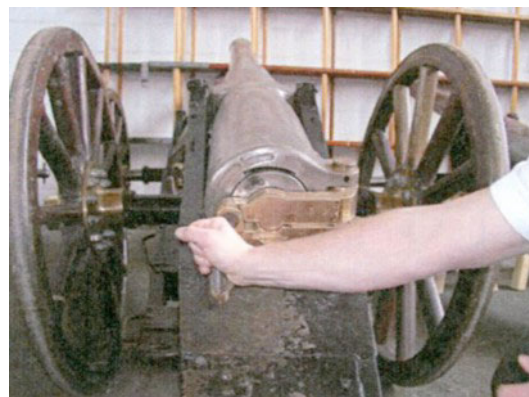


Fig 10-6. Breech Closed



WARNING

OBSTRUCTION DANGER. CARE MUST BE TAKEN TO ENSURE THAT THERE ARE NO OBSTRUCTIONS THAT MAY IMPAIR THE CLOSURE OF THE BREECH I.E. THE HAND THAT INSERTED THE CARTRIDGE.

- e. Once the cartridge has fired the breech is then re-opened and the drill cartridge is extracted using the extractor by the extracting member of the gun crew ([Fig 10-7](#), [Fig 10-8](#) and [Fig 10-9](#)). The extracting member is also known as the 'scratcher'.

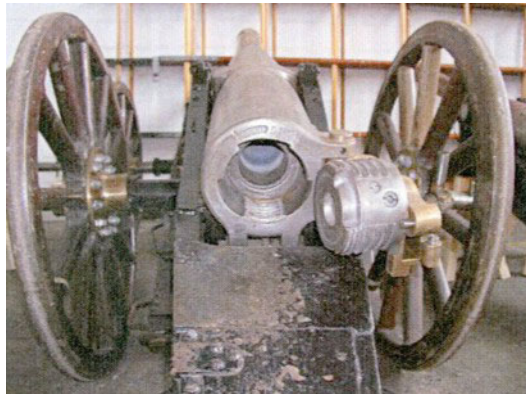
Fig 10-7. Breech Open Extractor Inserted



Fig 10-8. Cartridge Removed



Fig 10-9. Breech Empty



f. This drill is repeated 3 times at each of the first and second actions. Once the action is complete the breech is then fully closed until the splines reconnect inside thus locking the breech ([Fig 10-10](#)).

Fig 10-10. Breech Closed and Locked



LOADING AND REMOVAL OF 5.56MM BLANK ROUND FROM FIELD GUN CARTRIDGE

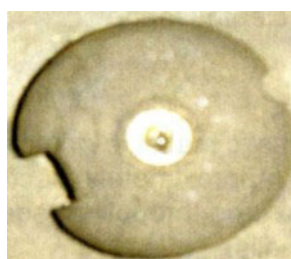
1002. Instructions for Loading Drill Cartridges with Blank 5.56 Rounds

- a. The firing number should inspect all 6 drill cartridges prior to use and use a file to take off any sharp burrs that may cut or lacerate human skin. The qualified member of the crew is to collect 6 x blank 5.56 rounds from the appropriate stowage in order to be loaded.
- b. Blank Rounds are to be inserted using the approved method, at no stage are rounds to be 'Crimped' as this is illegal; hitting a blank round with a hammer distorts the jacket of the blank round. Clear sticky tape placed over the drill cartridge to hold in place the 5.56 round is acceptable and to be brought to the attention of the track judge prior to each run if employed.

1003. Instructions for the Removal of Expended Blank Rounds

- a. Check that the base of the round has been struck (small indentation on the base of the percussion cap ([Fig 10-11](#))). If the round has not been struck, fit Shell into breech and re-fire. If round fires proceed to next paragraph, if not check base to see if percussion cap has been struck. If the percussion cap has not been struck there maybe a defect with the firing pin; check firing pin.

Fig 10-11. Struck Round



- b. If the blank round percussion cap has been struck, place the Shell upside down. Inspect with a torch to confirm that the round has fired (crimping on round should have opened up to fill the chamber of the Shell) ([Fig 10-12](#)). If crimping has not opened up, the round has not been fired. Once again try a re-fire, if unsuccessful return Shell to Collingwood for removal of round. If unable to confirm state of crimping on blank round proceed as in [Para 1004](#).

Fig 10-12. Fired Blank Round



BRd 9615
PART 1

c. Before removal of the fired round a final safety check is required. With the Shell upside down, place a depth gauge inside the cartridge chamber. The depth gauge should go in 2.5 inches to indicate that round has fired ([Fig 10-13](#)). The depth gauge can be made with screwdriver NSN O273 136 5597, with the blade cut to 2.5 inches ([Fig 10-16](#)). When the handle of the screwdriver rests on the Shell adapter, the round has been fired. If the depth gauge does not go in 2.5 inches ([Fig 10-15](#)) the Shell should be returned to Collingwood for removal of suspect live blank round ([Fig 10-14](#)).

**Fig 10-13. Fired Round
(Depth Gauge Fully Inserted)**



Fig 10-14. Unfired Blank Round



**Fig 10-15. Unfired Round
(Depth Gauge Fouled on Live Blank Round)**



Fig 10-16. Depth Gauge



d. A rubber/plastic mallet, a drift of suitable length and 3 inches deep by 5 inches wide by 12 inches long (approximately) section of timber with a hole drilled in the centre to allow spent cartridges to drop through is required for this evolution. This will prevent damage to the base of the Shells.

e. To remove a confirmed fired blank round, use a long shafted drift and hammer. Place the drift into the adapter of the upside down Shell and hammer the drift until the fired blank round comes out.

1004. Instructions for Removing Unexpended Blank Rounds

The removal of live blank rounds is to be conducted by HMS COLLINGWOOD Armoury Staff Only. When conducting this drill personnel are to wear safety goggles/gloves/ear defenders and ensure that a safety number is in attendance at all times.

a. Confirm that live blank round is fitted in Field Gun Cartridge (FGC). Can be confirmed by inspecting with a torch to see if the blank round is crimped and placing a depth gauge inside the cartridge chamber (confirmed live round if depth gauge does NOT go in 2.5 inches). Once confirmed a live blank round, place FGC in Gun; attempt to fire off (3 times). If the round fires, remove in accordance with [Para 1003](#), if not proceed to next paragraph.

- b. Wearing safety equipment, with FGC in Gun, use a punch and hammer to hit the percussion cap of the blank round. This may fire the round. If the round fires, remove FGC from gun and remove fired blank round in accordance with [Para 1004](#) above. If the round does not fire, the percussion cap should have a visible hole in it; remove FGC from Gun.
- c. Wearing safety equipment, the suspect live blank round can be removed by placing the FGC in a vice upside down. Placing a long drift in FGC adapter and keeping well back; hold the drift with a pair of long welding tongs and gently tap the drift with a long handled hammer to remove the suspect round.
- d. The suspect live blank round is to be returned to Joint Support Chain Services (JSCS) Gosport.

SAFETY

1005. Blank Ammunition

It must be appreciated that a weapon loaded with Blank Ammunition can present a considerable hazard. HMS COLLINGWOOD Gunnery Staff and Armourers have done extensive testing and the safety precautions given at [Table 10-1](#) (which have been adapted from the Blank Ammunition Safety Precautions as laid down in BRd 8988), must therefore be taken:

Table 10-1. Blank Ammunition – Safety Precautions

Concerning	Action or Requirement
Safety Distance	THE AREA IN FRONT OF THE MUZZEL (END OF BARREL) IS TO BE CLEAR OF ALL PERSONNEL OUT TO A RANGE OF 5 METRES (16.5 ft).
Noise Danger	ALL PERSONNEL CLOSED UP ON THE GUN FOR THE FIRST AND SECOND ACTIONS ARE TO WEAR EAR PROTECTION.

1006. Simulator Battle Sound L35A1

The Simulator Battle Sound L35A1 (SBS) is a hand thrown pyrotechnic training device designed to simulate generic battle sounds and replaces the N2 and N5 Thunderflash. It must be appreciated that the explosive content of a pyrotechnic can cause considerable injury, if not death, if used incorrectly or carelessly therefore, personnel charged with the use of pyrotechnics are to be in possession of the relevant qualification and comply with all instructions detailed in Army Pamphlet 13. Personnel from INM with the RNRMC FG Executive have conducted safety tests within HMS COLLINGWOOD and SBS L35A1 have been approved for safe use within the establishment. Agreed safety precautions can be found at [Table 10-2](#) and are to be used during the FG competition, they are also to be used as guidance for external events.

Table 10-2. Simulator Battle Sound L35A1 – Safety Precautions

Concerning	Action or Requirement
Safety Distance	<p>WHEN USED AT TATTOOS OR DISPLAYS THE FOLLOWING SAFETY DISTANCES ARE TO BE OBSERVED FROM THE POINT OF BURST:</p> <p>1. WHEN THE GENERAL PUBLIC IS PRESENT. – 100 METRES (325 ft). IN CASES WHERE A DISTANCE OF 100 METRES IS NOT OBTAINABLE, THE UNIT CONCERNED IS TO APPLY TO THE LOCAL ATO FOR AUTHORITY TO USE A SHORTER DISTANCE FOR THAT OCCASION.</p> <p>2. WHEN THE GENERAL PUBLIC IS NOT PRESENT. – 10 METRES (32.5ft).</p>
Noise Danger	<p>THE BATTERY COMMANDER IS TO WEAR THE APPROPRIATE EAR PROTECTION WHEN USING THE SIMULATOR BATTLE SOUND L35A1 TO START FIELD GUN RUNS.</p>

MAINTENANCE

1007. Royal Navy 12lb Field Gun Maintenance

a. The entire 12lb Royal Navy Field Gun maintenance schedule is carried out by HMS COLLINGWOOD. The Executive Committee has 2 positions for maintainers who ensure that all gun and limbers have a yearly Series Inspection and any defects are recorded, costed and undertaken by commercial experts within the engineering field. The 12lb Field Gun and limber maintenance areas are concentrated on the breeches, wheels, woodwork and general condition of the carriage. The following inspections are carried out by the maintenance team; barrel is securely mounted on the carriage via pip pins and spigots, the breech can be opened and closed cleanly, the overall condition of the carriage is sound with no sharp edges, the wheels are sound with the hub bolts are all secured and spokes and felloes are tightly fitted with no major gouges and the metal tyre is in place. The limber box also needs to be sound and the drag ropes fit for purpose.

b. No.1 Trainers are responsible for the care and upkeep of Field Guns and Limbers in their possession during the Field Gun season. No alterations can be carried out on the equipment iaw RNRMC FGIs and all defects are to be brought to the attention of the Chief Maintainer at the earliest opportunity and recorded in the defect log. Whilst on loan, the No.1 Trainer needs to ensure that the breech is kept rust free and the firing pin replaced if becomes too blunt, the wheel spokes remain tight and the woodwork sanded if required. All nuts and bolts need to be regularly tightened and any sharp edges need to be filed or taped as required to make them safe. The slat pole needs to remain tight within its socket attaching it to the limber.

c. The cost of maintenance is covered by funding from 2SL and entry fees from Crews. Firing pins, drill cartridges and pins can be replaced as necessary and any costs for lost or damaged equipment will be charged to the Ship or Establishment at the discretion of the RNRMC FG Executive Committee (RNRMC FGEC).

Note. A limited supply of Field Gun stores is held.

d. Field Guns can be maintained during RNRMC FGEC visits or when Crews attend Field Gun Week at the Maritime Warfare School HMS COLLINGWOOD

1008. Health and Safety

In accordance with RNRMC FGIs and current Defence H&S policy, each FGO and No 1 Trainer are responsible for submitting a safety case for each Field Gun Track and the associated dangers in undertaking the training and drill.

1009. MQUAL

In accordance with Army Pamphlet 21, blank rounds must be handled in the approved manner; the Field Gun Track is to be treated as any military range and No1 Trainers are to employ the Safe System of Training. Each crew must have a M-Qualified (SA (M) 07) person present if blank ammunition or pyrotechnics are to be employed during a training session. Each crew must have a written firing order in place for the duration of the season which should include an Exercise Action and Safety Plan (EASP). Crews are requested to try and enrol the support of their establishment armoury staff, failing this crews are to book a suitable/responsible member of the crew onto a MQUAL Course at the RN Military Training School in HMS RALEIGH. HMS COLLINGWOOD Armoury staff will provide cover for the RNRMC FG Competition as the host establishment.

1010. The Use of Blank Ammunition

Reference. Infantry Training Volume IV Ranges. Pamphlet No 21 - Regulations for the Planning, Conduct and Supervision of Firing and Training with Infantry Weapon Systems and Pyrotechnics 2009.

a. Responsibilities of Exercise Director, Planning, Conducting and Safety Staff.

(1) *Exercise Director.*

- (a) It is the responsibility of the Exercise Director, (ie the person who directs that training (blank or live) is to be carried out (CO of a Unit)) to appoint a Senior Planning Officer.
- (b) The Exercise Director is to ensure that the Senior Planning Officer appointed is competent, qualified and of the appropriate rank to supervise all staff involved in the activity and of sufficient experience to match the complexities of the exercise.
- (c) The exercise Director cannot appoint him/herself to be the Senior Planning Officer or any other appointment.

(2) *Senior Planning Officer.*

- (a) It is the responsibility of the Senior Planning Officer to appoint a Planning Officer and a Range Conduction Officer or **Exercise Conducting Officer (Training with Blank and Pyrotechnics)**. The Senior Planning Officer is to ensure that they are:
 - i. Competent, qualified and of sufficient experience to match the complexity of the training.
 - ii. Given sufficient guidance, time, resources and manpower to be able to plan, conduct and supervise the training, including the appropriate level of medical cover.
- (b) The Senior Planning Officer cannot appoint himself to any of the appointments. He/she has a duty to ensure that:

- i. The plan meets the requirements of the aim of the exercise.
- ii. There are sufficient Safety Supervisors or Exercise Assistants and they are competent to undertake their duties.
- iii. The exercising troops are competent to undertake the exercise and have completed the necessary progression of training.

(c) Once the Senior Planning Officer is satisfied that sufficient resources and manpower are available he/she is to inform the Exercise director. However, if the Senior Planning Officer considers there are insufficient resources or manpower available, in particular, qualified or authorised safety staff or that the exercising troops are insufficiently prepared, then he/she is to refer the matter back to the Exercise Director for a decision.

(d) Should the Senior Planning Officer decide the RCO is not competent due to a lack of experience, he/she can nominate an experienced and competent RCO to conduct the exercise to enable the less experienced RCO to gain the necessary skill set.

(3) *Planning Officer.* The Planning Officer is the officer, warrant officer or NCO who is appointed by the Senior Planning Officer and is responsible for the design of the live or **blank firing training**. The Planning Officer is to be competent, qualified and may or may not be the Range/**Exercise Conducting Officer**. He/she has a duty to ensure that:

(a) A detailed plan is produced that meets the requirements of the aim of the exercise and has considered and where appropriate included:

- i. The Safe System of Training, in particular the use of safe weapons and ammunition, safe ranges/training areas, safe conducting and supervising staff and safe exercising troops.
- ii. The prerequisite criteria for training with Inf WS, Pyrotechnics and AFVs.
- iii. The rules and regulations contained in the relevant chapters of the reference and other relevant publications.

(b) If as a result of this detailed planning the Planning Officer considers there are insufficient resources or manpower available then he/she is to refer the matter back to the Senior Planning Officer for a decision.

(4) *Exercise Conducting Officer (ECO).* The Exercise Conducting Officer (ECO) is the officer/warrant officer or NCO appointed by the Senior Planning Officer to be responsible for the safe conduct of the firing as specified by the Senior Planning Officer's plan in accordance with the relevant Service instructions. The ECO is to be competent with the weapon system being used, qualified **SA (M) (07)** and of appropriate rank and experience to match the complexity of the exercise being conducted, the ECO may also be the Planning Officer. The ECO is to ensure the regulations laid down in GSPs for the use of blank ammunition and pyrotechnics are complied with. He/she may be assisted by a number of exercise Assistants. He/she is also to ensure that if pyrotechnics require to be destroyed in situ, using explosives, he/she or a member of his/her staff are qualified to do so.

(5) *Exercise Assistant.* The Exercise Assistants are appointed by the Senior Planning Officer. They are responsible for the safe conduct of those aspects of an exercise involving blank ammunition or pyrotechnics that are allotted to him/her. There is no minimum qualification, however, the Exercise Assistant is to be current with the weapon and pyrotechnics he/she is supervising, been briefed by the ECO and hold the minimum rank of LCpl. There is no laid down ratio of Exercise Assistants to exercising troops when using blank ammunition or pyrotechnics in dry training, however, there should be sufficient to ensure that at no stage could the safety regulations applicable to the exercise be infringed. This assessment is to be made by the Planning Officer or ECO for the exercise and should take into account the standard of the exercising troops set against the type of training being conducted. The ratio of Exercise Assistants to Exercise Troops is to be recorded in the EASP.

(6) *Exercising Troops.* Prior to any form of training with blank ammunition or pyrotechnics all exercising troops are to receive appropriate training and be formally tested in their use. This training and testing is to be conducted by a qualified instructor and should include the various safety regulations for the blank ammunition and pyrotechnics being used.

(7) *Exercise Written Instruction.*

(a) A written instruction is to be produced for any activity involving the use of blank ammunition or pyrotechnics. The written instruction must include the Exercise Action and Safety Plan (EASP) which must contain relevant safety requirements for the use of blank ammunition and pyrotechnics and be distributed to the exercising staff as necessary. The written instruction is to be produced by the ECO for the exercise. A suggested example of the possible headings to be included in the EASP is given in the reference.

(b) If in exceptional circumstances, where ECOs are using written instructions produced by someone else, they **must check thoroughly and countersign the written instructions before using them.** The responsibility for any deficiency of the written instructions passes to the ECO once the written instruction has been countersigned.

(8) *Medical Support.* The Planning Officer/ECO is responsible for ensuring the level of medical cover is appropriate to the scale of the exercise and must refer the matter to the Senior Planning Officer if this level cannot be achieved.

(9) *Hearing Protection.* The noise of discharge from service weapons can cause considerable damage to unprotected ears. Whenever troops are firing blank ammunition and/or using pyrotechnics, the wearing of issued, serviceable hearing protection is compulsory. This applies to all military and civilian personnel. Checking for hearing protection is the responsibility of the ECO and his exercise staff, however, this does not absolve firers of their personal responsibility to safeguard their own hearing.

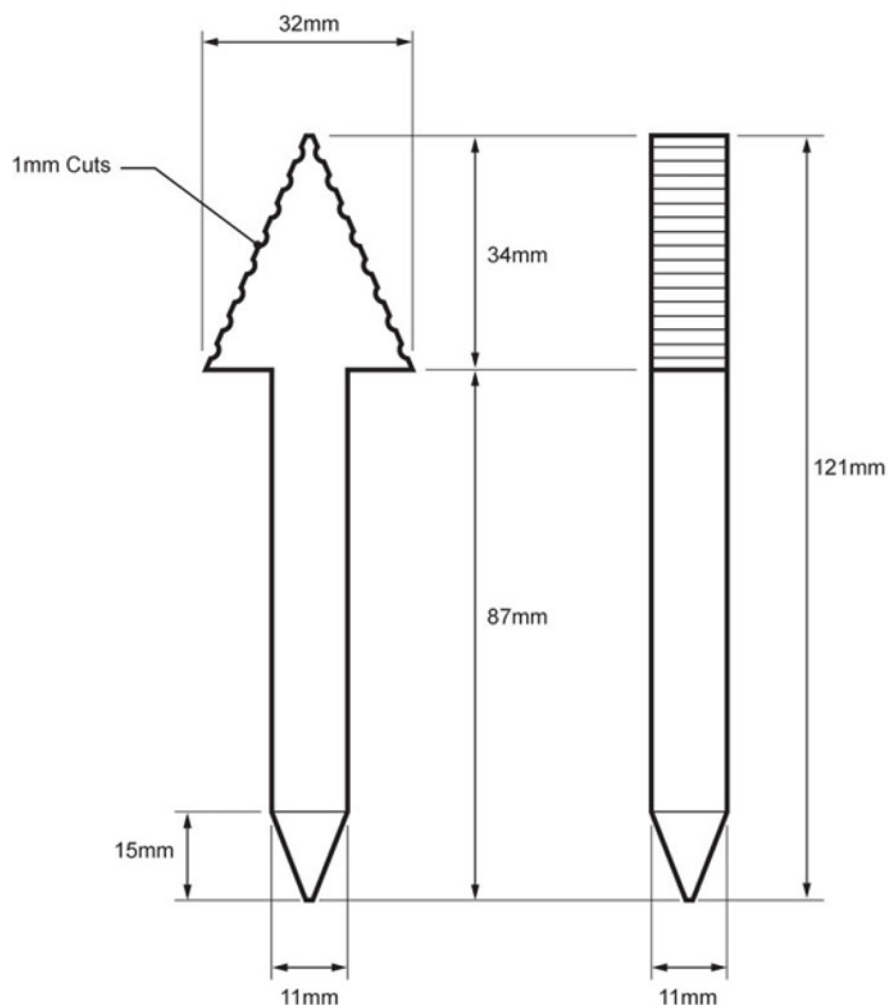
(10) *Risk Assessments.* Commanders at all levels have a personal responsibility for ensuring that activities are undertaken in as safe a manner as is reasonably practicable, taking due regard of any risks to personnel. Although the mechanism for discharging this duty can be delegated and assistance and support obtained, the responsibility cannot be. Notwithstanding the requirement for a Medical Risk Assessment training with weapon systems is covered through the provision of all aspects of the Safe System of Training. Therefore, providing all aspects of the planned training are covered by the Safe System of Training, there is no requirement to conduct independent risk assessments. If any aspect of training is not covered by the Safe System of Training then that aspect must be subjected to a risk assessment and additional control measures to reduce risk to As Low As Reasonably Practicable (ALARP) must be implemented. Any risk assessment is to be recorded and attached to the co-ordinating instruction or RASP/EASP along with the 2* dispensation. Risk assessment is detailed in JSP 375.

WHEEL PIN AND EXTRACTOR

1011. Wheel Pin

The template at [Fig 10-17](#) is to be used to manufacture new wheel pins should the need arise.

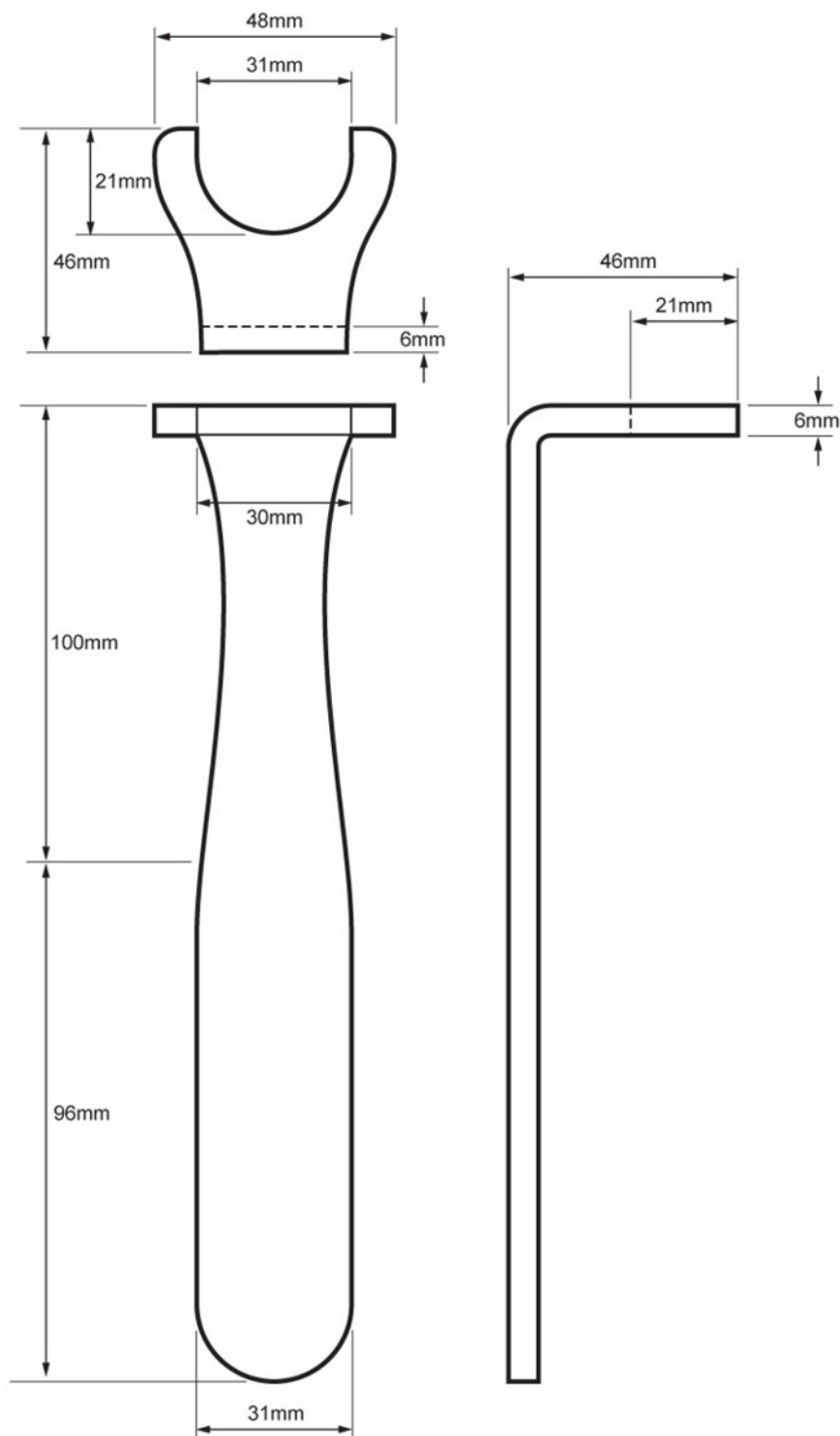
Fig 10-17. Wheel Pin Template



1012. Extractor

The template at Fig 10-18 is to be used to manufacture a new extractor should the need arise.

Fig 10-18. Extractor Template



Note. Wheel pins and extractors are not to be manufactured by any crew without first gaining authorisation to do so from the Chief Judge, Chief Maintainer or Maintenance Team.